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ITS RELATION TO NASAL CATARRH.

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JARVIS' OPERATION ; ITS RELATION TO NASAL CATARRH.

IN a paper read before the American Laryngological Association in New York, on June 2, 1880, and published in the *Archives of Laryngology* for April 1, 1881, Dr. Wm. C. Jarvis, of this city, presented a most ingenious wire-snare ecraseur, devised for the purpose of removing the hypertrophied mass which presents so prominently at the posterior termination of the lower turbinated bone in hypertrophic nasal catarrh ; together with the indications for the operation. To Dr. Jarvis is due the credit, I believe, of first calling attention to this feature of nasal catarrh, and also of presenting an instrument for dealing with it which fulfils every requirement in a most admirable manner. It should be stated, however, that Bigelow,* in demonstrating the erectile tissue which he finds upon the turbinated bones, calls attention to the fact that when this tissue is artificially distended by a blow-pipe, "a pouch-like process projects from the rear of the bone, increasing its length." Since this paper was published I have performed Jarvis' operation in a very large number of cases, and with such unvaryingly favorable, and oftentimes brilliant results, that I am induced to call renewed attention to the procedure, in part because I regard it as one of the most promising advances that has been made in the treatment of this obstinate disease, but mainly because in many of the details of the operation, its indications and results, I differ from its originator.

The following cases are selected somewhat at random from my note-book, as illustrating many of

* Boston Med. and Surg. Journal, April 29, 1875.

the points that I desire to make prominent, and are therefore related somewhat in detail.

CASE I.—Miss W—— consulted me on August 17, 1880, with the following history: In 1874 she commenced training her voice, which had been pronounced an unusually promising one. Her study progressed favorably, and in the fall of 1879 she accepted the position of soprano in one of our church choirs. During this time she was conscious of a moderate nasal catarrh, but it does not seem to have caused any marked impairment of voice, until about two months after she commenced her engagement, when she noticed that her voice was becoming weak, with a decided loss of brilliancy in the upper notes, particularly in *staccato* movements. There was also a weakness in all the purely head tones, which seemed to increase. She had previously possessed a long respiration, but to control the voice was now obliged to breathe frequently. After singing any length of time she experienced a sense of fatigue in her throat and chest, hitherto unknown. In February, 1881, she caught a severe cold, which developed in an attack of acute follicular tonsillitis, from which she recovered at the end of three weeks. This attack left her voice in a still more impaired state, so much so that she was compelled to cancel her engagement. Rest and mountain air were advised by her physician and tried, but without avail, and her voice seemed irretrievably lost.

On August 17, 1880, she came under my care, when I found, on examination, a moderate hyperæmia of the larynx; a chronic catarrh of the pharynx, with moderate enlargement of the glands at the pharyngeal vault; and hypertrophy of the nasal mucous membrane, involving each middle turbinated bone, and more markedly the lower, at the posterior termination of which were seen the characteristic masses. These masses, however, were small, about the size of a small raspberry, and with my experience at that time the indications for an operation did not seem sufficient. She was treated for ten weeks by applications of acetic acid to the turbinated bones, together with astringent sprays to the larynx

and pharynx. Under this plan she seemed to recover, and on November 1st was discharged apparently well. In April, 1881, however, she returned to me, a typical illustration of the oftentimes ephemeral character of many of our cures of catarrh accomplished by local and superficial remedies, for in this case the treatment had really consisted in local applications which were superficial to an extent in their action. Her old symptoms had all returned. I now concluded to perform Jarvis' operation. On April 9th I operated on one side, consuming an hour and a half in the procedure. There was slight hemorrhage at the time, and after waiting a half hour she left the office and went shopping. While on Broadway, about two hours after the operation, a hemorrhage set in, but not very excessive; so, with the bleeding going on, she made her way home and sent for her physician. The bleeding proved obstinate, and persisted intermittingly for thirty-six hours. The result was exceeding prostration, bringing on an attack of tonsillitis, from which she recovered at the end of three weeks. I saw her again after her recovery on May 2d, when she presented with a relaxed throat and a train of discouraging symptoms. I proceeded, however, to complete the operation on the other side. I now placed the wire loop *in situ*, and drawing it tight I allowed it to remain, and giving an occasional slight turn to the screw, occupied three hours in the procedure, my patient sitting in an easy chair behind a screen in my office and reading the morning paper while the snare projected from the nose. There was no pain and but trifling discomfort.

At the end of three hours the loop was drawn home and the instrument was withdrawn. There was scarcely a drop of blood, and the severed mass was left in the nose. I directed her to refrain from blowing the nose for the day and to see me the next day, when she came, bringing the tumor, which had dropped out during the same evening, and reported that there had been absolutely no bleeding or any unpleasant symptoms whatever from the operation.

The patient was seen twice each week for a few weeks, and was dismissed in early June entirely well,

both from rhinoscopic examination and clinical symptoms. Writing to me since, she reports that she is now "convinced that the compass and quality of her voice are fully restored," and she is singing again with her accustomed ease, and that the *staccato* movements are accomplished with a clearness and brilliancy which she has not possessed for years. She very graphically describes her former efforts as similar to those of a violinist attempting to produce a brilliant and powerful tone with a padding on the bridge or sounding board of his violin.

It may be said of this case that she was cured once before, and that the trouble may recur, as formerly. There lies this difference, that the symptoms were removed only in the former case, while, by the operation, the prominent morbid condition which gave rise to the symptoms has been removed. I believe this to be a permanent cure, for, as I shall notice further on, the operation on the lower turbinated bone exercises a positive action on the erectile tissue of the middle bone. I have reported the above case at length, and with an amount of detail which may seem tedious, but to me it was an exceedingly instructive case as bearing on many points.

The human larynx is the most perfect musical instrument that has ever been created, not only technically, but in its flexibility, its capacity of expression, and above all other considerations, in its power of conferring happiness. The physician's art loses nothing of dignity, therefore, if, going beyond the mere practice of health-restoring, the study is added of the development, culture, and preservation of this most perfect function of the larynx—the singing voice. The sounding-board function, as it were, of the pharynx and nasal cavities is one whose importance in vocalization cannot be overestimated. The first impulse of the vocal waves is upon the pharyngeal vault, from which they are reflected into the nasal cavities. This does not apply so prominently to the chest-notes, but is of exceeding import in regard to the head-notes. Now, if the nasal lining membrane be the seat of a chronic inflammation resulting in hypertrophy, this sounding-

board function is necessarily to a greater or less extent impaired. The singer, unconsciously perhaps, by an exaggerated effort of the respiratory muscles, endeavors to compensate for this deficiency by driving a more powerful current of air through the glottis. The result is obvious: the chest muscles become soon weary, the vocal muscles become tired by the increased tension rendered necessary, and a laryngeal hyperæmia ensues, involving the danger of a laryngeal catarrh and permanent impairment of voice. The same line of reasoning applies with even greater force to the existence of the thickened masses on the lower turbinated bones posteriorly, lying as they do in a position to shut off the nasal cavities from the pharynx, and to completely interrupt the vocal waves in the head-register.

Another point, I think, is well illustrated in the above case, and that is the influence of nasal catarrh upon the air-passages below. I have always, in my teaching, laid especial emphasis on the fact that, in the very large majority of instances, a laryngeal catarrh is the result of a nasal catarrh. In singers, this result is caused often in the manner above alluded to. It may occur also by mouth-breathing caused by nasal obstruction; by the irritation of the discharges making their way from the nose into the larynx; and finally, by a direct extension of the catarrhal process.

CASE II.—Mrs. W—— came under my care September 22, 1880, with a history of a throat catarrh of six years' duration. Her main annoyance has been from the accumulation of thick tenacious mucus in the fauces, which she could only dislodge by violent effort. She was liable to take cold easily, and her recurrent attacks seemed to attack regions lower down in the air-passages each time. She had been under the care of a number of physicians, and had been subjected to numerous plans of treatment. An examination revealed a chronic catarrh of the pharynx and larynx, with thickening of the nasal lining as seen anteriorly. A rhinoscopic examination was rendered impossible by an exceedingly irritable throat. I treated her for three months with local astringents and gave marked relief, but failed

to effect a permanent cure. During this time, the most patient effort failed in giving me a view of the posterior nares, and finally, in March, I determined to use the snare as a searcher, and to test the existence of a posterior turbinated hypertrophy by it. The loop became engaged after one or two trials, and tightening it I slowly severed the mass, occupying an hour and a half. There was but slight hemorrhage at the time, and she left my office. Three hours afterward I called upon her and found that an hour after she left me her nose had commenced to bleed and had continued without cessation. I immediately plugged the nares from in front and arrested the bleeding. The plug was removed on the second day following, but hemorrhage recurred, and I plugged again, and allowed the plugs to remain until the fourth day. Ten days later I operated on the other nostril, and consumed three hours in severing the mass. The procedure was accomplished with no pain, discomfort, or hemorrhage, during the operation or subsequently. I saw the patient but twice afterward for treatment, when she was discharged cured. She reports to me a week ago that she was entirely free from any trouble with the throat, and that the operation had accomplished for her what all her previous treatment had failed to do. It should be also stated that this lady was a fine reader, but had been compelled to abandon it on account of her voice becoming weak and husky on slight exercise. She reports this difficulty entirely removed.

CASE III.—G. W.— came to me from Northern New York, on March 30, 1881, to consult me on account of a nasal catarrh of seven years' standing. He had used douches and snuffs, and various devices for its relief, but without avail. He was also the possessor of a fine tenor voice, but for two years had not been able to sing, his voice, as he expressed it, was entirely gone. He complains of a constant dropping in his throat, which is the source of great annoyance. An examination revealed a chronic catarrh of the larynx and pharynx, with moderate hypertrophy of the membrane covering the middle and lower turbinated bones, with masses on the

latter about half filling the posterior choannæ. I advised an operation and with his assent, immediately proceeded to remove one mass with the snare. I consumed an hour and a half in the procedure, and there was no hemorrhage. Four days later I operated on the other side, consuming the same time. Violent hemorrhage immediately set in, which required plugging. The plugs were allowed to remain forty-eight hours. I treated him subsequently for three weeks with local astringents to overcome the moderate disease of the upper turbinated bones and the larynx, and finally discharged him cured.

This was a typical case of nasal catarrh, illustrating the effect of the disease in causing laryngitis, and also the fact which I believe to be true, that a large proportion of the excessive discharge in this disease has its source in these enlarged masses on the lower turbinated bones, and that in their removal we radically remove the disease itself. I might report a large number of cases whose results are in every way as flattering as those narrated, but I have already written at greater length than I intended. It remains to draw some general conclusions.

The indications for the operation.—In every case where there exists a mass that will engage the snare it is a morbid growth and should be removed. I believe that the indications for the operation are as prominent as those for the operation of tonsillotomy, and that the results to be obtained are quite as favorable in the one case as in the other.

Hemorrhage.—By far the most troublesome feature of the operation is in the hemorrhage, and in some cases it seems very difficult to avoid it, for the cut surface not only extends through the congested blood-vessels of the mucous membrane, but also into the enlarged and dilated blood-spaces, which make up the erectile tissue which underlies the mucous membrane. As will be seen, the hemorrhage from this source is not only profuse, but is to an extent intractable, for it is not amenable to astringents or hemostatics. The only resource is to so accomplish the operation that the edges of the cut surface shall remain in apposition, or to plug. I have, in every case where it

became necessary, succeeded in plugging from in front, thus avoiding the troublesome manipulation of Bellocq's canula, or other devices of the kind. Knowing the exact source of the bleeding, it is quite feasible to pass, successively, small pledgets of cotton through the nostril, back to the cut surface, where they can be wedged between the turbinated bone and the septum. It is not safe to remove the plugs in less than forty-eight hours. It is important to count the pledgets as they are introduced, as the knowledge is of value when it becomes necessary to remove them.

The operation.—Dr. Jarvis recommends the placing of the loop of the snare by means of the rhinoscopic mirror. I have in no instance found this necessary. In many cases it will be impossible. Dr. Jarvis calls attention to the fact, that, as this hypertrophy develops, it grows backward, projecting into the pharynx, and that thus there is formed a deep sulcus between the mass and the side of the pharyngeal wall. The existence of this sulcus renders the operation by the snare not only feasible, but extremely simple. It is the only point which can engage the loop of the snare. In a healthy nose there is nothing which will engage the loop. Hence it follows that nothing can be seized which should not be removed, and, further, that anything in the nasal cavity, which can be engaged by the loop, is a morbid growth and should be removed. There is, therefore, no danger of doing any damage to healthy structures. Furthermore, it is quite feasible to use the snare as a searcher, as was done in Case II.

It is the great advantage of Jarvis' instrument, that it is mounted with steel piano wire, which furnishes a loop which is so resisting that it can be easily manipulated. Furthermore, it possesses a bend, given it by the coil in which it comes, so that as it is projected from the instrument, the loop curves to one side. In operating, the proper-sized loop is adjusted to the instrument, and is then drawn into the canula until a small loop projects, which will pass through the nostril. This is then passed through the nares until it reaches the pharynx. The wire is now played into the canula, thus

enlarging the loop in the pharynx. If, now, the instrument has been entered in such a way that when the wire loop emerges from the distal end of the canula it will bend around toward the turbinated bone, it will be seen that as it is slowly withdrawn the wire will fall over the tumor and into the sulcus between it and the wall of the pharynx. Holding the canula steadily in the left hand and turning the screw, and at the same time pressing the distal end of the canula firmly against the turbinated bone, the mass will be constricted. The screw should be now turned until the resistance is very great, when the patient should lie down and make himself as comfortable as possible. The passing of the instrument is unpleasant, but the irritation will soon pass away. The tightening of the loop is quite painful, but the pain lasts but a moment. The loop should be slowly tightened by, say a half turn of the screw every five or ten minutes, and at least two hours or, better still, three hours consumed by the operation. There are two objects accomplished by this; one is the avoidance of hemorrhage, and the other is the avoidance of an open cut surface. This latter I regard as important. The parts are drawn up by the loop much like the puckering string of a bag. If, now, they are held in this position for, say three hours, they become agglutinated together in such a way, that when they are cut through they remain in apposition and do not open out again. There is then avoided an open cut surface, which may occupy several days in healing, and during that time prove the seat of pain and irritation. That the parts are cut through will be known by the sudden cessation of resistance in turning the screw. The part should be kept quiet several hours after the operation and the nose should not be blown. If the severed mass does not come out on the instrument, it had best be left *in situ* until it drops into the pharynx, though it probably would not be well to leave it in during sleep.

The results of the operation.—These have been fairly brought out by the cases. They may be summed up as follows:

First.—The removal of a most serious obstacle to

a full rich tone, especially of the head-notes in the singing voice.

Second.—The removal of a serious menace to the integrity of the singing voice.

Third.—The removal of a prominent feature of nasal stenosis, which sooner or later will develop a pharyngeal and laryngeal catarrh.

Fourth.—The removal of what is largely the source of excessive secretion in nasal catarrh.

Fifth.—I am convinced that the removal of the mass by the above method, cutting into the erectile tissue, diminishes the tension of the blood-spaces and affords relief to the mucous membrane beyond the seat of operation; and, still further, that the traction exercised in drawing the membrane into the loop of the snare, exercises a beneficial action in the whole length of the turbinated bone. I have certainly seen a puffy thickening of the mucous membrane anteriorly relieved by removal of the hypertrophied mass posteriorly.

26 WEST FORTY-SIXTH STREET.